7 What are the Effluent Limitations Guidelines and Standards for Subparts B and E?

This section discusses the numerical ELGs and standards that EPA has promulgated for mills with operations in Subparts B and E. For a discussion of BMP regulations, which apply to all mills with operations covered by Subparts B and E, see Chapter 9. Figures 7-1 through 7-4 summarize the rule for these subparts in four flowcharts:

- Subpart B direct dischargers;
- Subpart B indirect dischargers;
- Subpart E direct dischargers; and
- Subpart E indirect dischargers.

Direct Dischargers

BAT and BPT/BCT

This subsection discusses the BAT and BPT/BCT ELGs promulgated for direct dischargers with operations in Subparts B and E. As noted in Section 2, EPA did not revise BPT ELGs for conventional pollutants. As a result, you must establish permit limits based on the revised BAT ELGs and the BPT ELGs that were previously established.

Subpart B - Bleached Papergrade Kraft and Soda

BAT

40 CFR 430.24 establishes BAT effluent limitations guidelines for AOX, TCDD, TCDF, chloroform, and 12 chlorinated phenolic pollutants. Mills are subject to the ELGs for the chlorinated pollutants listed in Table 7-1 unless the mill certifies that they use a totally chlorine free (TCF) bleaching process (see 40 CFR 430.24(a)(2)). Note that there are additional BAT ELGs for mills that use chlorophenolic biocides (see 40 CFR 430.24(d)); however, many mills, if not all, certify they do not use these compounds. (Refer to Section 10 for discussions of developing permits for mills enrolling in VATIP.)

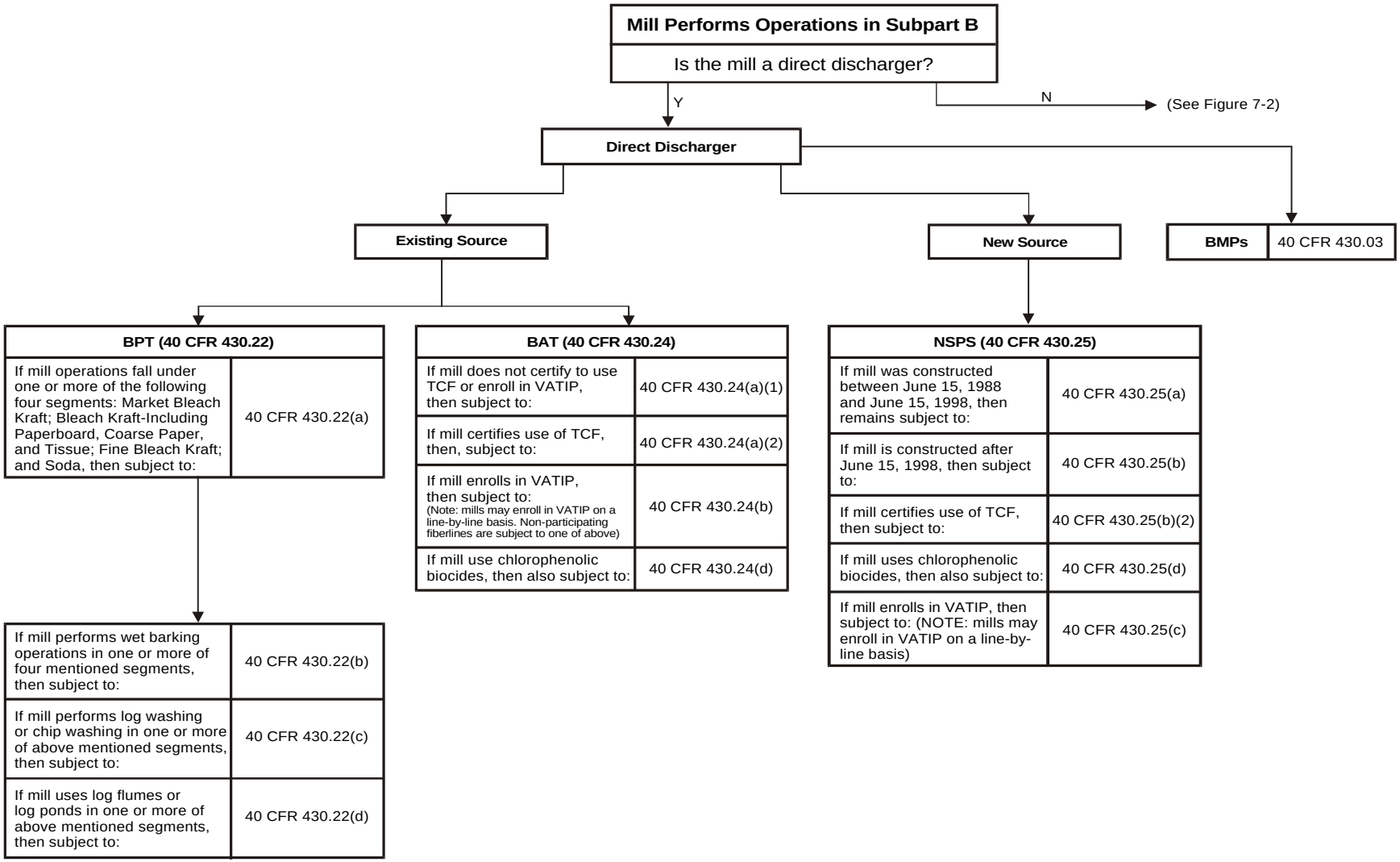

Figure 7-1: Applicability of Subpart B ELG&S

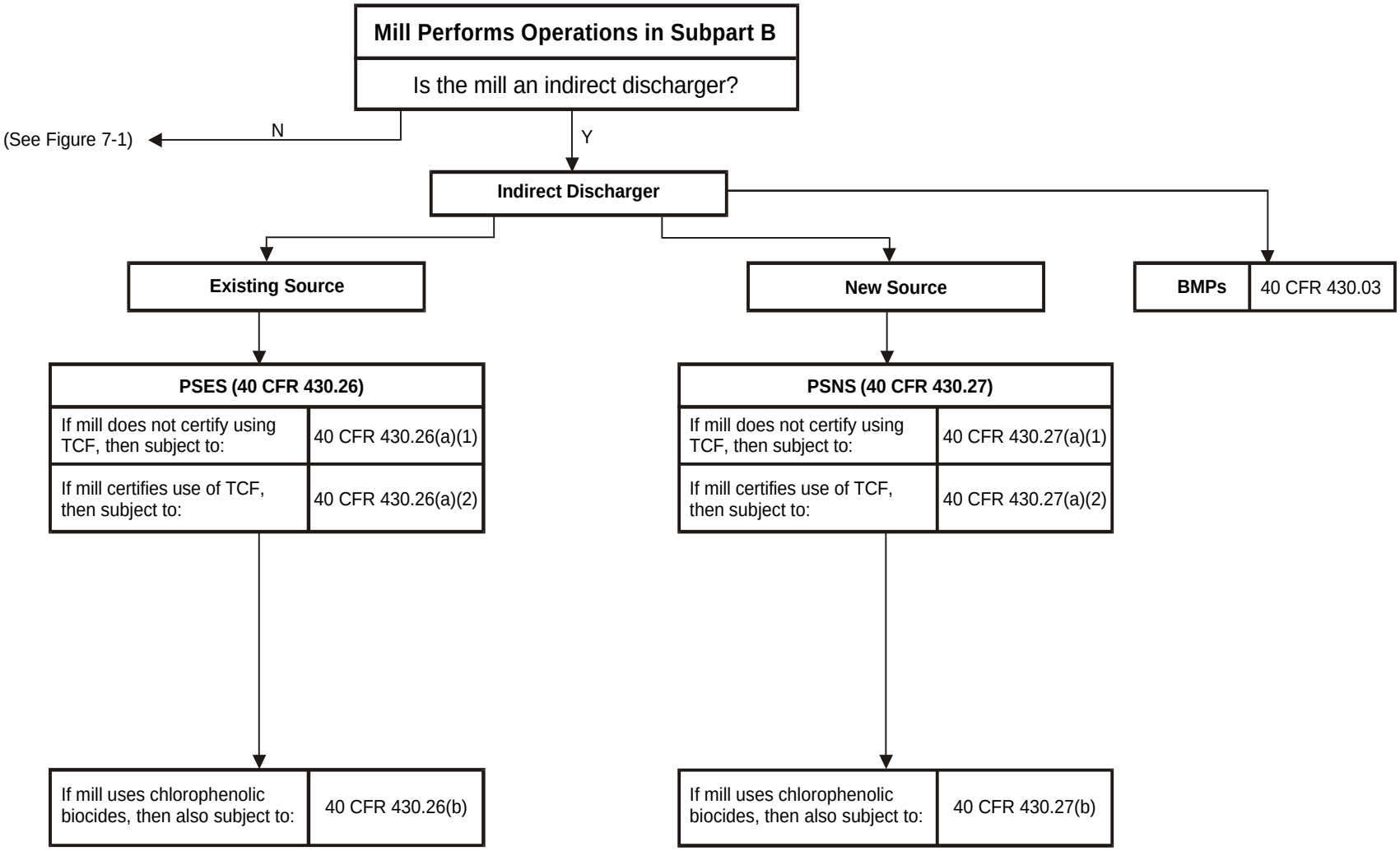

Figure 7-2: Applicability of Subpart B ELG&S

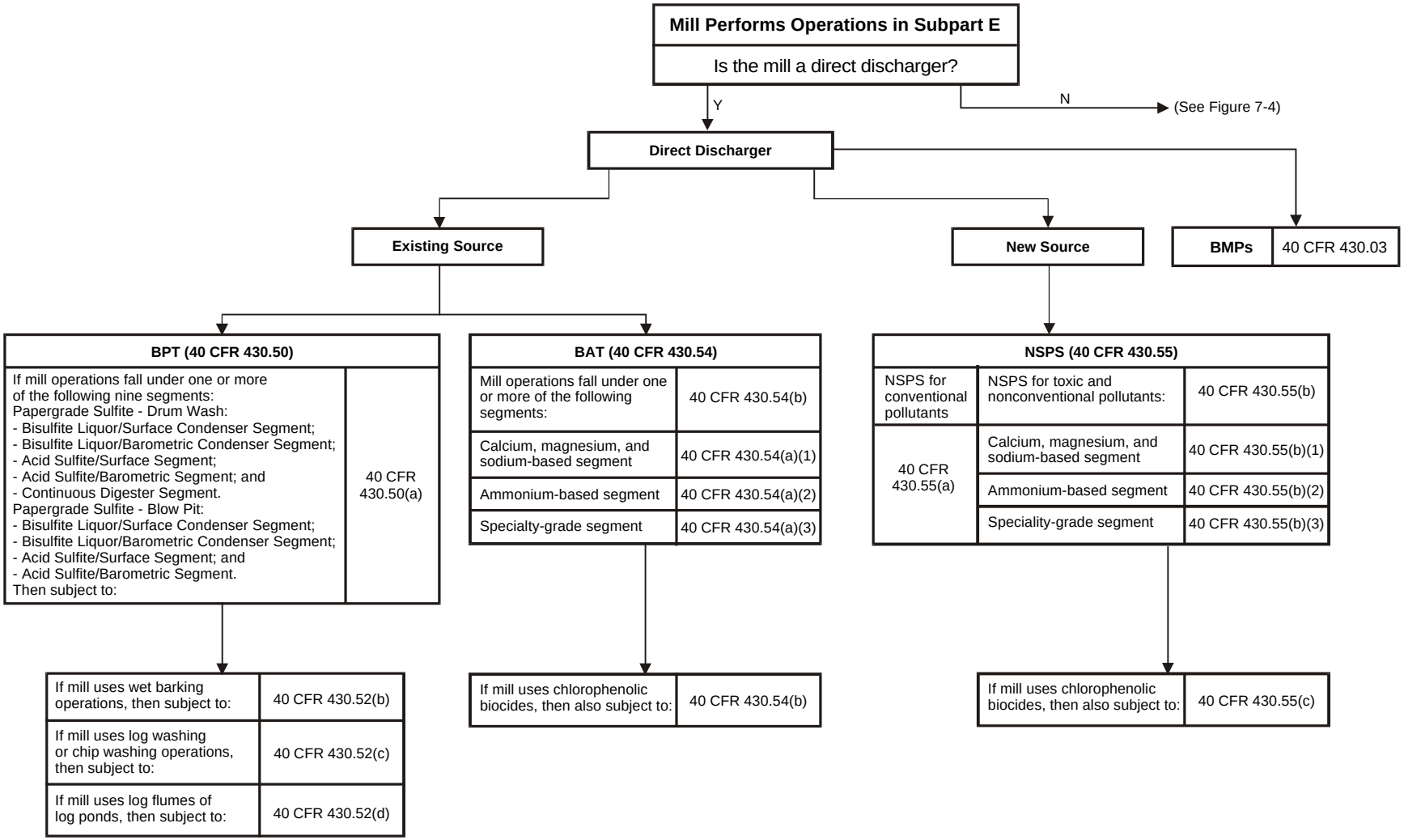

Figure 7-3: Applicability of Subpart E Standards

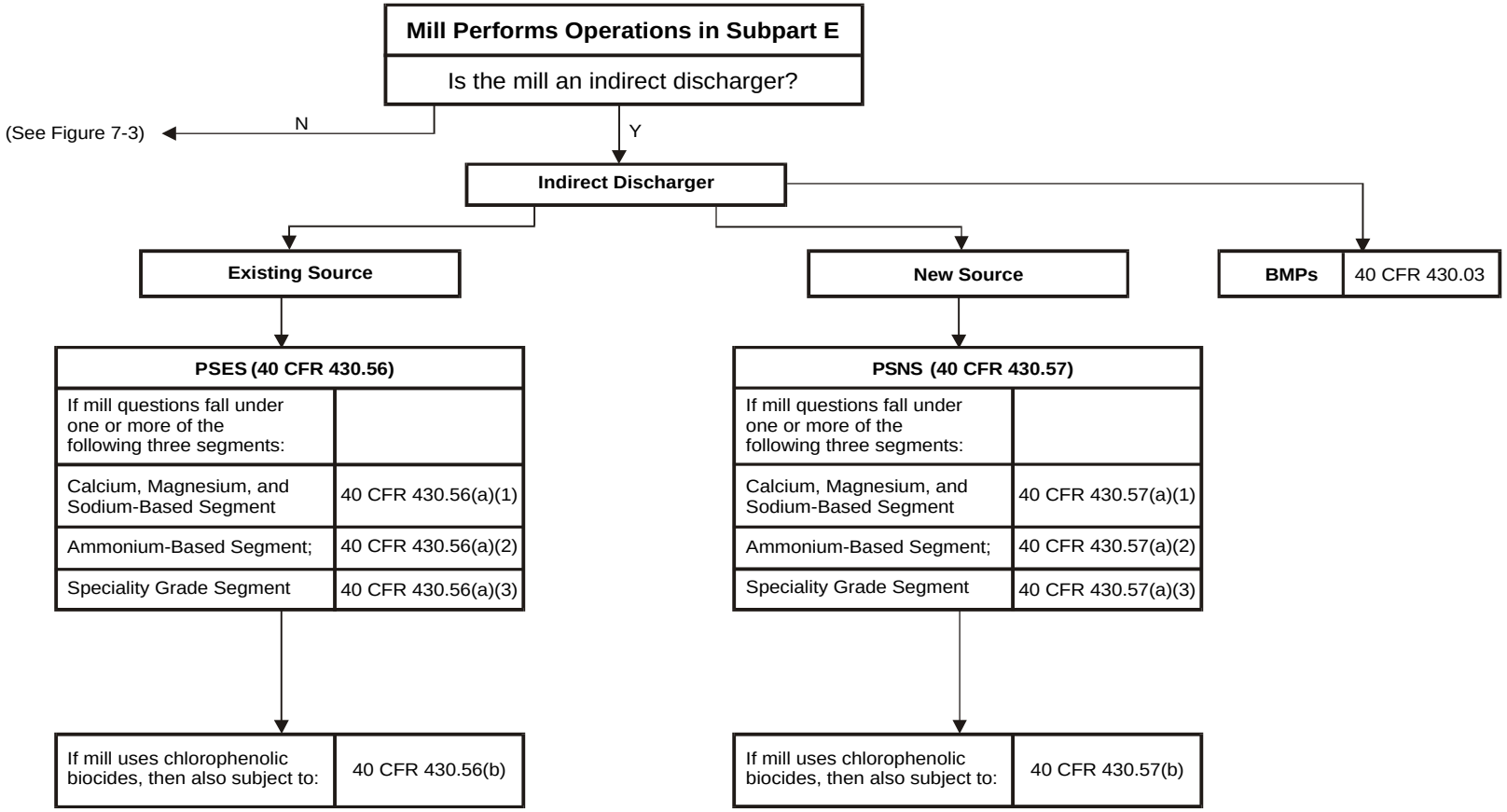

Figure 7-4: Applicability of Subpart E Standards

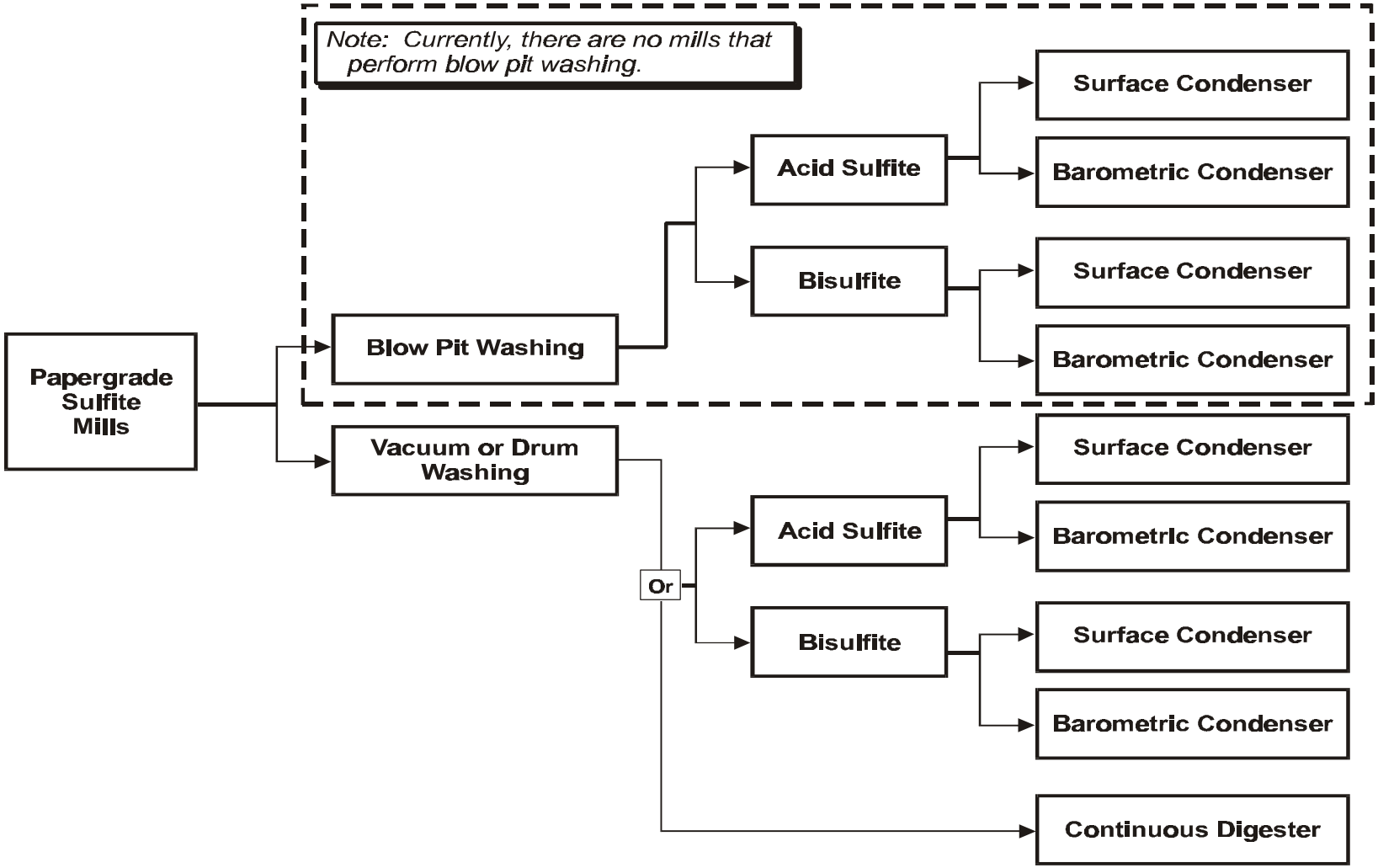

Figure 7-5: Diagram of Subpart E BPT Segments

BPT

40 CFR 430.22 establishes BPT ELGs for BOD_5, TSS, and pH. You must establish permit limits based on the products manufactured (and pulping process in the case of soda mills) at the mill. Mills may be subject to BPT ELGs for one or more of the following four segments:

Note: EPA plans to promulgate discharge limits for COD in a future rulemaking. In the interim, COD limits and COD monitoring should be based on Best Professional Judgement (BPJ).

1. Production of market pulp using a bleached kraft pulping process;
2. Integrated production of paperboard, coarse paper, and tissue paper from pulp made using a bleached kraft pulping process;
3. Integrated production of fine paper from pulp made using a bleached kraft pulping process; and
4. Production of market pulp and fine paper using a soda pulping processes.

Mills that perform wet woodyard operations are subject to additional BPT ELGs; however, few mills, if any, continue to perform such operations (refer to 40 CFR 430.22(b), (c), and (d)).

Subpart E - Papergrade Sulfite

BAT

40 CFR 430.54 establishes BAT effluent limitations guidelines for the three segments of Subpart E (calcium-, magnesium-, and sodium-based, ammonium-based, and specialty-grade pulp). Tables 7-3 and 7-4 list the ELGs for each pollutant regulated for the three segments. Note that there are additional BAT ELGs for mills that use chlorophenolic biocides (see 40 CFR 54(b)); however, many mills, if not all, certify they do not use these compounds.

Note: BPJ should be used to establish permit limits for pollutants that have reserved ELGs.

BPT

40 CFR 430.52 establishes the BPT ELGs for BOD_5, TSS, and pH. You must establish permit limits based on mill process operations. Mills are subject to one of the following. The nine BPT segments are defined as "papergrade sulfite mills where":

1. Blow pit washing techniques are used (bisulfite liquor/surface condensers);
2. Blow pit washing techniques are used (bisulfite liquor/barometric condensers);
3. Blow pit washing techniques are used (acidic liquor/surface condensers);
4. Blow pit washing techniques are used (acidic liquor/barometric condensers);
5. Vacuum or pressure drums are used to wash pulp (bisulfite liquor/surface condensers);

6. Vacuum or pressure drums are used to wash pulp (bisulfite liquor/barometric condensers);
7. Vacuum or pressure drums are used to wash pulp (acidic liquor/surface condensers);
8. Vacuum or pressure drums are used to wash pulp (bisulfite liquor/barometric condensers); and
9. Vacuum or pressure drums are used to wash pulp (continuous digester).

Figure 7-5 presents a diagram of the Subpart E BPT segments. Table 7-5 lists the BPT limitations for each Subpart E segment. Mills that perform wet woodyard operations are subject to additional BPT ELGs; however, few mills, if any, perform such operations (see 40 CFR 430.52(b), (c), and (d)).

NSPS

The NSPS promulgated under Subparts B and E apply to any mill subject to those subparts that is a "new source" as defined in 40 CFR 430.01(j), such as any newly constructed direct discharger (i.e., greenfield mill) that is located at a site where no other source is located, or an existing mill that extensively modifies its fiber line(s), or constructs a new fiberline.

Note: See 40 CFR 430.01(j) for the definition of New Source as it relates to Subparts B and E.

Mills modifying their fiber lines or adding new fiber lines are likely to be the most common trigger of NSPS. In this case, NSPS are applicable to the modified fiber line only; the remainder of the mill remains an existing source subject to BAT. Section 430.01(j) of the rule outlines the following types of changes to existing mills to which you must apply NSPS (this discussion also applies to PSNS described later in this section):

1. The modified fiber line completely replaces an existing source. This definition *does not* include fiber lines enrolled in the Voluntary Advanced Technology Incentives Program or fiber lines modified to comply with baseline BAT (see Section 9).

   Note that the following changes *do not* cause an existing fiber line to be considered a new source:

   - Upgrades of existing pulping operations;
   - Upgrades or replacement of pulp screening and brown stock pulp washing operations;
   - Upgrading bleach plant unit operations;

- Installation of extended cooking and/or oxygen delignification systems or other post-digester, pre-bleaching delignification systems;
- Changes in methods or amounts of bleaching chemical applications;
- Changes in the types of bleaching chemicals used;
- Installation of new bleaching towers to facilitate replacement of sodium or calcium hypochlorite; and
- Installation of new bleached pulp washing systems.

2. The modified fiber line is substantially independent of an existing source at the same site (i.e., an existing mill builds and operates an entirely new fiber line that supplements the capacity of an existing fiber line).

A mill is considered a new source under NSPS if it meets the two requirements above and if it begins discharging after June 15, 1998.

Subpart B - Bleached Papergrade Kraft and Soda Subcategory

40 CFR 430.25 establishes NSPS for AOX, TCDD, TCDF, chloroform, 12 chlorinated phenolic pollutants, BOD_5, TSS, and pH for new mills with operations in Subpart B. Table 7-6 lists the limits for each pollutant regulated by NSPS for Subpart B. Mills are subject to the standards for chlorinated pollutants unless the mill certifies that they use TCF bleaching processes (see 40 CFR 430.25(b)(2)). (Refer to Section 10 for discussion of developing permits for mills enrolling in VATIP.)

Subpart E - Papergrade Sulfite

40 CFR 430.55 establishes NSPS for TCDD, TCDF, 12 chlorinated phenolic pollutants, BOD_5, TSS, and pH for new mills with operations in Subpart E. NSPS for toxic and nonconventional pollutants are equivalent to the BAT guidelines (see Table 7-3 and 7-4). EPA did not revise NSPS for conventional pollutants; therefore, you must use the standards for BOD_5, TSS, and pH established in 1982. Table 7-7 presents these previously established NSPS.

Indirect Dischargers

PSES and PSNS

This section discusses PSES and PSNS for existing and new indirect dischargers with operations in Subparts B and E. Refer to above discussion of new sources for a definition of mills subject to PSNS, and refer to 40 CFR 430.1 (j) and 403.3 (k).

If an existing indirect discharger "commences construction" of a new fiber line or other installation that would fall within the Part 430 definition of "new source," and if it commences construction after December 17, 1993 (see 40 CFR 403.3(k)), that post-1993 installation would be subject to PSNS.

Subpart B - Bleached Papergrade Kraft and Soda

40 CFR 430.26 and 430.27 establish PSES and PSNS for AOX, TCDD, TCDF, chloroform, and 12 chlorinated phenolic pollutants. EPA has made no pass-through determination for COD; therefore, there are no COD pretreatment standards for Subpart B at this time. PSES are equivalent to BAT guidelines for all pollutants except AOX (see Table 7-1).

Table 7-8 lists the PSES and PSNS for AOX. Note that indirect discharge mills must assess compliance with AOX limitations at the bleach plant.

Subpart E - Papergrade Sulfite

40 CFR 430.56 and 430.57 establish PSES and PSNS for each segment of Subpart E. PSES and PSNS are equivalent to BAT guidelines for all pollutants, except chloroform, AOX, and COD. Under BAT, EPA has reserved ELGs for these pollutants. For PSES and PSNS, however, EPA has made no pass-through determination for chloroform or AOX in the ammonium and specialty-grade segments (nor for COD for all of Subpart E). As a result, there are no pretreatment standards for chloroform or AOX for the ammonium and specialty-grade segments or COD for any Subpart E segment. At this time, EPA has insufficient data to characterize the performance of the model BAT technologies for chloroform, AOX, and COD for Subpart E and to subsequently conduct a pass-through analysis. When these data become available, EPA will make pass-through determinations and (if warranted) will set pretreatment standards for these pollutants.

Table 7-1: Subpart B BAT Effluent Limitations Guidelines

Pollutant	BAT(c),(d)			
	Continuous Dischargers		Noncontinuous Dischargers Annual Average (kg/kkg)	Point of Compliance
	1-Day Maximum (kg/kkg)	Monthly Average (kg/kkg)		
TCDD	<ML (a)	(b)	NA	Bleach Plant Effluent
TCDF	31.9 pg/l	(b)	NA	Bleach Plant Effluent
Chloroform	6.92 g/kkg (d)	4.14 g/kkg (d)	NA	Bleach Plant Effluent
Trichlorosyringol	<ML(a)	(b)	NA	Bleach Plant Effluent
3,4,5-Trichlorocatechol	<ML(a)	(b)	NA	Bleach Plant Effluent
3,4,6-Trichlorocatechol	<ML(a)	(b)	NA	Bleach Plant Effluent
3,4,5-Trichloroguaiacol	<ML(a)	(b)	NA	Bleach Plant Effluent
3,4,6-Trichloroguaiacol	<ML(a)	(b)	NA	Bleach Plant Effluent
4,5,6-Trichloroguaiacol	<ML(a)	(b)	NA	Bleach Plant Effluent
2,4,5-Trichlorophenol	<ML(a)	(b)	NA	Bleach Plant Effluent
2,4,6-Trichlorophenol	<ML(a)	(b)	NA	Bleach Plant Effluent
Tetrachlorocatechol	<ML(a)	(b)	NA	Bleach Plant Effluent
Tetrachloroguaiacol	<ML(a)	(b)	NA	Bleach Plant Effluent
2,3,4,6-Tetrachlorophenol	<ML(a)	(b)	NA	Bleach Plant Effluent
Pentachlorophenol	<ML(a)	(b)	NA	Bleach Plant Effluent
AOX	0.951 kg/kkg	0.623 kg/kkg	0.512	Final Effluent
COD	Reserved	Reserved	Reserved	Reserved

(a) "<ML" means less than the minimum level specified in Section 430.01(I) for that particular pollutant.

(b) This regulation doesn't specify a monthly average limitation for this pollutant; however, you may do so as appropriate.

(c) See 40 CFR 430.24(d) for additional limitations that apply to mills that use chlorophenolic biocides.

(d) Mills that certify to use TCF are not subject to the ELGs. Refer to 40 CFR 430.24(a)(2).

NA - Not applicable for this compliance point.

Table 7-2: Subpart B BPT Effluent Limitations Guidelines

Pollutant	BPT Limitations (b)			
	Continuous Dischargers		Non-Continuous Dischargers	
	1-Day Maximum	Average of Daily Values for 30 Consecutive Days	Annual Average	Compliance Point
Bleached Kraft Mills Producing Market Pulp Segment				
BOD_5	15.45 kg/kkg	8.05 kg/kkg	4.52	Final Effluent
TSS	30.4 kg/kkg	16.4 kg/kkg	9.01	Final Effluent
pH	(a)	(a)	(a)	Final Effluent
Bleached Kraft Mills Producing Paperboard, Coarse Paper, and Tissue Paper Segment				
BOD_5	13.65 kg/kkg	7.1 kg/kkg	3.99	Final Effluent
TSS	24 kg/kkg	12.9 kg/kkg	7.09	Final Effluent
pH	(a)	(a)	(a)	Final Effluent
Bleached Kraft Mills Producing Pulp and Fine Paper Segment				
BOD_5	10.6 kg/kkg	5.5 kg/kkg	3.09	Final Effluent
TSS	22.15 kg/kkg	11.9 kg/kkg	6.54	Final Effluent
pH	(a)	(a)	(a)	Final Effluent
Soda Mills Producing Pulp and Paper Segment				
BOD_5	13.7 kg/kkg	7.1 kg/kkg	3.99	Final Effluent
TSS	24.5 kg/kkg	13.2 kg/kkg	7.25	Final Effluent
pH	(a)	(a)	(a)	Final Effluent

(a) Within the range of 5.0 to 9.0 at all times.

(b) See 40 CFR 430.22(b), (c), and (d) for additional limitations that apply to mills that use wet wood yard operations.

Table 7-3: BAT Effluent Limitations Guidelines for Subpart E Ammonium-Based and Specialty-Grade Sulfite Pulp Segments

	Continuous Dischargers		Noncontinuous Dischargers		
Pollutant	**1-Day Maximum**	**Monthly Average**	**1-Day Maximum**	**Annual Average**	**Point of Compliance**
TCDD(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
TCDF(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
Chloroform(a)	Reserved	Reserved	NA	NA	Reserved
Trichlorosyringol(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
3,4,5-Trichlorocatechol(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
3,4,6-Trichlorocatechol(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
3,4,5-Trichloroguaiacol(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
3,4,6-Trichloroguaiacol(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
4,5,6-Trichloroguaiacol(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
2,4,5-trichlorophenol(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
2,4,6-trichlorophenol(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
Tetrachlorocatechol(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
Tetrachloroguaiacol(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
2,3,4,6-Tetrachlorophenol(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
pentachlorophenol(a)	<ML(b)	(c)	NA	NA	Bleach Plant Effluent
AOX	Reserved	Reserved	Reserved	Reserved	Reserved
COD	Reserved	Reserved	Reserved	Reserved	Reserved

(a) These limitations do not apply to fiber lines that use a TCF bleaching process.
(b) "<ML" means less than the minimum level specified in Section 430.01(I) for that particular pollutant.
(c) This regulation does not specify monthly average limitations for this pollutant; however, you may do so as appropriate.
NA - Not applicable for this compliance point.

Table 7-4: BAT Effluent Limitations Guidelines for Calcium-, Magnesium-, or Sodium-Based Sulfite Segments

	Final Effluent in kg/kkg (or pounds per 1,000 lbs) of Product				
	Continuous Dischargers		Noncontinuous Dischargers		
Pollutant	**1-Day Maximum**	**Monthly Average**	**1-Day Maximum**	**Annual Average**	**Point of Compliance**
AOX	<ML(a)	(b)	<ML(a)	(b)	Final Effluent
COD	Reserved	Reserved	Reserved	Reserved	Reserved

(a) "<ML" means less than the minimum level specified in Section 430.01(I) for that particular pollutant.
(b) This regulation does not specify this type of limitation; however, you may do so as appropriate.

Table 7-5: Subpart E BPT Effluent Limitations Guidelines(1)

Segment	Pollutant (a)	BPT Limitations in kg/kkg (or pounds per 1,000 lbs) of product			Point of Compliance
		Continuous dischargers		Noncontinuous dischargers	
		1 Day Maximum	Average of daily values for 30 consecutive days	Annual Average	
Papergrade Sulfite Mills Using Blow Pit Washing Techniques (2)	**Bisulfite liquor/surface condensers**				
	BOD_5	31.8	16.55	9.3	Final Effluent
	TSS	43.95	23.65	13	Final Effluent
	Bisulfite liquor/barometric condensers Kg/kkg (or pounds per 1,000 lb) of product				
	BOD_5	34.7	18.05	10.14	Final Effluent
	TSS	52.2	28.1	15.44	Final Effluent
	Acid sulfite liquor/surface condensers				
	BOD_5	32.3	16.8	9.44	Final Effluent
	TSS	43.95	23.65	13	Final Effluent
	Acid sulfite liquor/barometric condensers				
	BOD_5	35.55	18.5	10.39	Final Effluent
	TSS	52.2	28.1	15.44	Final Effluent
Papergrade Sulfite Mills Using Vacuum or Pressure Drums to Wash Pulp (2)	**Bisulfite liquor/surface condensers)**				
	BOD_5	26.7	13.9	7.81	Final Effluent
	TSS	43.95	23.65	13	Final Effluent
	Bisulfite liquor/barometric condensers				
	BOD_5	29.4	15.3	8.6	Final Effluent
	TSS	52.2	28.1	15.44	Final Effluent
	Acid sulfite liquor/surface condensers				
	BOD_5	29.75	15.5	8.71	Final Effluent
	TSS	43.95	23.65	13	Final Effluent
	Acid sulfite liquor/barometric condensers				
	BOD_5	32.55	16.9	9.49	Final Effluent
	TSS	52.2	28.1	15.44	Final Effluent
Papergrade Sulfite Using Vacuum or Pressure Drums to Wash Pulp (2)	**Continuous digester**				
	BOD_5	38.15	19.85	11.15	Final Effluent
	TSS	53.75	28.95	15.91	Final Effluent

(1) See 40 CFR 430.52(b), (c), and (d) for additional limitations that apply to mills that use wet woodyard operations.

(2) Each segment includes pH limitations guidelines within the range of 5.0 to 9.0 at all times.

Table 7-6: Subpart B New Source Performance Standards

Pollutant	Bleach Plant Effluent		Final Effluent	Point of Compliance
	Continuous Dischargers		Noncontinuous Dischargers	
	1-Day Maximum	Monthly Average	Annual Average (kg/kkg)	
TCDD	<ML (a)	(b)	NA	Bleach Plant Effluent
TCDF	31.9 g/L	(b)	NA	Bleach Plant Effluent
Chloroform	6.92 g/kkg	4.14 (d)	NA	Bleach Plant Effluent
Trichlorosyringol	<ML(a)	(b)	NA	Bleach Plant Effluent
3,4,5-Trichlorocatechol	<ML(a)	(b)	NA	Bleach Plant Effluent
3,4,6-Trichlorocatechol	<ML(a)	(b)	NA	Bleach Plant Effluent
3,4,5-Trichloroguaiacol	<ML(a)	(b)	NA	Bleach Plant Effluent
3,4,6-Trichloroguaiacol	<ML(a)	(b)	NA	Bleach Plant Effluent
4,5,6-Trichloroguaiacol	<ML(a)	(b)	NA	Bleach Plant Effluent
2,4,5-Trichlorophenol	<ML(a)	(b)	NA	Bleach Plant Effluent
2,4,6-Trichlorophenol	<ML(a)	(b)	NA	Bleach Plant Effluent
Tetrachlorocatechol	<ML(a)	(b)	NA	Bleach Plant Effluent
Tetrachloroguaiacol	<ML(a)	(b)	NA	Bleach Plant Effluent
2,3,4,6-Tetrachlorophenol	<ML(a)	(b)	NA	Bleach Plant Effluent
Pentachlorophenol	<ML(a)	(b)	NA	Bleach Plant Effluent
AOX	0.476 kg/kkg	0.272 kg/kkg	0.208 kg/kkg	Final Effluent
BOD_5	4.52 kg/kkg	2.41 kg/kkg	1.73 kg/kkg	Final Effluent
TSS	8.47 kg/kkg	3.86 kg/kkg	2.72 kg/kkg	Final Effluent
pH	5 - 9		5 - 9	Final Effluent
COD	Reserved	Reserved	Reserved	Reserved

(a) "ML" means less than the minimum level specified in Section 430.01(I) for that particular pollutant.
(b) This regulation does not specify this type of limitation for this pollutant; however, you may do so as appropriate.
NA - Not applicable for this compliance point.

Table 7-7: Subpart E New Source Performance Standards for Conventional Pollutants

Pollutant Parameter	Final Effluent		
	Kg/kkg (or pounds per 1,000 lbs) of Product		
	Continuous Dischargers		Noncontinuous Dischargers
	1 Day Maximum	Average of Daily Values for 30 Consecutive Days	Annual Average
BOD_5	4.38 exp(0.017x)	2.36exp(0.017x)	Average of daily values for 30 consecutive days divided by 1.91
TSS	5.81exp(0.017x)	3.03exp(0.017x)	Average of daily values for 30 consecutive days divided by 1.90
pH	(a)	(a)	(a)

x - Percent sulfite pulp in final product.
(a) Within range of 5 to 9.

Table 7-8: Subpart B Pretreatment Standards for AOX

Regulation	Pollutant	Bleach Plant Effluent	
		1-Day Maximum (kg/kkg)	Monthly Average (kg/kkg)
PSES	AOX	2.64	1.41
PSNS	AOX	1.16	0.814